

**METHOD AND APPARATUS FOR SCENE LEARNING
AND THREE-DIMENSIONAL TRACKING USING
STEREO VIDEO CAMERAS**

ABSTRACT OF THE DISCLOSURE

A method and apparatus are provided for learning a model for the appearance of an object while tracking the position of the object in three dimensions. Under embodiments of the present invention, this is achieved by combining a particle filtering technique for tracking the object's position with an expectation-maximization technique for learning the appearance of the object. Two stereo cameras are used to generate data for the learning and tracking.